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09/784,076	02/16/2001	Sebastien Corbeil	016499-856	4892

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EXAMINER

VANOY, TIMOTHY C

ART UNIT

PAPER NUMBER

1754

5

DATE MAILED: 08/26/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09-784,076

Applicant(s)

CORBEIL et al.

Examiner

VANOY

Group Art Unit

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—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- ☐ Responsive to communication(s) filed on _____
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-22 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-22 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☒ The drawing(s) filed on FEB 22, 02 is/are objected to by the Examiner
- ☒ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
 - ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☒ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

DETAILED ACTION

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

OK The description of the figures set forth on pg. 6 raises the question of which (if any) of the figures should be designated by a legend such as --Prior Art-- because the brief description of some of the figures seem to suggest that some of the figures are, in fact, illustrations of prior art processes. For example, the brief description of Fig. 1 sets forth that it shows the layout of the recaustification process where the present invention is used. If Fig. 1 only shows what appears to be a prior art recaustification process, then shouldn't it be labeled "prior art"? **Each figure should be reviewed to ensure that it has been properly labeled "Prior Art", if required.**

See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

- 2/c
a) The application data set forth on pg. 10 ln. 17 in the Applicants' specification is objected to because it is incomplete.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as their invention.

- a) In claim 1 line 3, there is no antecedent basis in the previous claim language for the "catalyst" mentioned in line 3. It may be that the Applicants are using two different descriptors ("transition metal oxide" and "catalyst") for the same material.
- b) Claim 1 does not particularly point out and distinctly set forth what the "liters" in "g/l" is in reference to. What is it that the catalyst is dissolved in to provide the recited concentration of 0.05 to 6.5 g/l.

Similarly, in claim 18 it is also not clear what it is that the metal oxide is dissolved in to provide the recited concentration of 0.05 to 6.5 g/l.

- c) While the Applicants may be their own lexicographer, a term in a claim may not be given a meaning repugnant to the usual meaning of that term. See *In re Hill*, 161 F.2d 367, 73 USPQ 482 (CCPA 1947). The term "self-recirculating" in claims 4, 20 and 21 is used in these claims to mean "stirred by means of a rotating propeller", as evinced

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by the illustration set forth in Applicants' Fig. 11, while the accepted meaning is "circulation of a fluid without requiring external circulation-inducing means (such as the rotating propeller illustrated in Applicants' Fig. 11 or (alternatively) a re-cycle pump) - such as by the force of gravity."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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The person having "ordinary skill in the art" has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3, 5-19 and 22 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 97/42372 and U. S. Pat. 5,607,233, the combination taken together.

WO-372 describes what appears to be the same process for making polysulfides by:

forming a slurry of a sodium sulfide-containing white liquor and manganese dioxide, wherein the manganese dioxide is present at a concentration of 1 to 20 percent by weight (of the white liquor) (please see claims 1 and 18 and pg. 7 ln. 24 to pg. 8 ln. 7 and the EXAMPLE on pg. 13);

mixing the slurry with air at a flow rate of 1 to 20 ft³/minute (please also see pg. 9 lns. 8-10) in a mixer at a pressure of 1 to 300 psig; a reaction time of 15 seconds to 10

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minutes and a temperature of 50 to 100 °C (please see claims 1, 5, 8 and 13) so as to convert the sodium sulfides into polysulfides, in a manner that is not seen to be unobviously distinct from the limitations set forth in Applicants' claims 1-3, 6, 9-19 and 22.

Note that it is reasonably expected that the consumption rate of oxygen in the process of WO-372 is *inherently* controlled through the control of the relative amount of oxygen in the air being passed through the mixer, as described on pg. 9 lns. 14-20 in WO-372 - in the manner set forth in Applicants' claims 7 and 8.

The difference between the Applicants' claims and WO-372 are the dimensions used to describe the various process parameters. For example, Applicants' claim 1 sets forth that the catalyst is present in an amount ranging from 0.05 to 6.5 **g/l** whereas pg. 8 lns. 5-7 in WO-372 reports that the catalyst is present in the white liquor in an amount ranging from 1 to 20 **percent by weight** of the white liquor.

However, it is submitted that this difference would have been obvious to one of ordinary skill in the art at the time the invention was made *because* a "side-by-side" comparison of the process parameters recited in WO-372 and the Applicants' claims fairly suggests that there is no actual distinction in the actual concentrations, flow rates, etc. in the comparing these two processes. Since, no actual distinction is seen or has been shown between the process parameters used in the Applicants' process and the process of WO-372, then these claims are rejected under 35 USC 102 - as well as 35 USC 103.

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The difference between the Applicants' claims and WO-372 is that Applicants' claims 1 and 16-19 describe the conversion efficiencies for converting the sulfide into polysulfide, whereas pg. 13 Ins. 4-6 in WO-372 reports that their process results in increasing the yields of polysulfides from about 10 to about 15 percent over yields known heretofore - *however*, it is submitted that this difference would have been obvious to one of ordinary skill in the art at the time the invention was made *because* a "side-by-side" comparison of the Applicants' process and the process of WO-372 reveals that there is no perceptible, unobvious distinctions between these two processes (even in view of the different dimensions used to describe the same process parameters, as previously discussed), and the *same* process treating the *same* feeds at *indistinct* process conditions will inherently produce the same polysulfides at the same claimed conversion efficiencies reported in Applicants' claims 1 and 16-19. Since no actual difference is seen or has been shown or is expected between the actual conversion efficiencies reported in Applicants' claims 1 and 16-19 and the conversion efficiencies inherently present in the process described in WO-372, then these claims are also rejected under 35 USC 102 - as well as 35 USC 103.

Pg. 5 ln. 16 to pg. 16 ln. 6 in WO-372 reports that they use the mixer described in U. S. Pat. App'n. No. 08-382,213 (now U. S. Pat. 5,607,233). Figs. 1 and 3 in US-233 shows a mixer containing what appears to be the same claimed "hollow shaft" set forth in Applicants' claim 5 (please see feature 30 illustrated in Figs. 1 and 3 in US-233).

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Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 97/42372 and U. S. Pat. 5,607,233, the combination taken together, as applied to claims 1-3, 5-19 and 22 above, and further in view of U. S. Pat. 5,082,526.

The difference between the Applicants' claims and WO 97/42372 and U. S. Pat. 5,607,233 is that Applicants' claims 4, 20 and 21 call for the use of a "self-recirculated" reactor (i. e. a reactor equipped with rotating paddles, as illustrated in Applicants' Fig. 11), whereas the mixer that the process of WO 97/42372 uses does not appear to be such a rotating paddle mixer.

U. S. Pat. 5,082,526 illustrates in its Fig. 3 and describes in col. 7 lns. 22-32 and col. 8 lns. 14-25 a similar method for oxidizing sodium sulfide in white liquor into what appears to be the same polysulfides by providing a slurry of white liquor and catalyst in a reactor (54) and injecting air or oxygen into reactor (54) to oxidize the sodium sulfide. The reactor (54) is equipped with a stirrer (56), such that the oxidation occurs under stirred conditions (i. e. the claimed "self-recirculated" condition recited in Applicants' claims 4, 20 and 21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made *to modify* the process of WO 97/42372 and U. S. Pat. 5,607,233 *by substituting* the rotating paddle reactor (54) illustrated in Fig. 3 in U. S. Pat. 5,082,526 *in lieu of* the "mixer 16" described on pg. 5 ln. 16 to pg. 6 ln. 6 in WO 97/42372, in a manner to result in the use of the "self-recirculating" reactor described in Applicants' claims 4, 20 and 21, *because* such substitution of one known functional equivalent in lieu of another known functional equivalent, for the same purpose, is *prima*

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facie obvious: please see the discussion of the *In re Fout* 675 F.2d 297, 213 USPQ 532 (CCPA 1982) court decision discussed in section 2144.06 in the MPEP (8th ed.) for further details.

The following references, which are indicative of the state of the art, are made of record:

U. S. Pat. 5,972,165 disclosing a method for producing oxidized white liquor;

U. S. Pat. 5,234,546 disclosing polysulfide production in white liquor;

U. S. Pat. 4,024,229 disclosing the production of polysulfide with a catalyst;

U. S. Pat. 3,860,479 disclosing the catalytic oxidation of pulping liquor;

U. S. Pat. 3,723,242 disclosing the oxidation of sulfide pulping liquor;

JP 56-149,304 A disclosing polysulfide production from Kraft pulp waste solution,

and

Pgs. 19-4 to 19-14 in the Chemical Engineers' Handbook (5th ed.) disclosing various mixing technologies.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy C. Vanoy whose telephone number is 703-308-2540. The examiner can normally be reached on 8 hr. days.

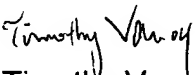
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman, can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-

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872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Timothy Vanoy/tv
August 21, 2002


Timothy Vanoy
Patent Examiner

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